

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Listing of Claims:

1. (Previously Presented) A data processing system comprising:

a first storage system that is configured to couple to a host device and configured to send and receive data to and from the host device;

a second storage system that is coupled to the first storage system and configured to receive data from the first storage system; and

a third storage system that is coupled to the first storage system and configured to receive data from the first storage system, wherein

the first storage system includes a first storage area that is configured to store data written from the host device, and a second storage area that is configured to store the data written from the host device and update information relating to a write order of the data ,

the first storage system is configured to transmit the data to the second storage system synchronously with receiving the data from the host device, and transmit the data and the update information relating to the write order of the data to the third storage system asynchronously with receiving the data from the host device,

the second storage system includes a third storage area that is configured to store the data received from the first storage system, and a fourth storage area that is configured to store the data received from the first storage system and update information relating to the write order of the data in order to transmit the data and the update information stored in the fourth storage area to the third storage system in case of failure of the first storage system,

the third storage system includes a fifth storage area that is configured to store the data and the update information read from the second storage area, and a sixth storage area that is configured to store the data included in the fifth storage area according to the update information included in the fifth storage area, and

the third storage system is configured to write the data and the update information received from the first storage system in the fifth storage area, and write the data stored in the fifth storage area in the sixth storage area according to the update information stored in the fifth storage area.

2. (Canceled)

3. (Currently Amended) A data processing system according to claim 1,

wherein the first storage system is configured to request, upon receiving from the host device a data write request to write data, the second storage system to write

the data therein, and notify, after receiving a write-response from the second storage system, the host device of a completion of the data write request, and

wherein the first storage system is configured to write in the first storage area the data written from the host device, and write in the second storage area the data written from the host device and the update information relating to the write order of the data.

4. (Previously Presented) A data processing system according to claim 3,

wherein the first storage system is configured to generate, upon receiving from the host device the data write request, an update number that is used for identifying the write order of the data, and include the update number in a data write request that is sent to the second storage system, and

wherein the update information written in the fourth storage area of the second storage system includes the update number received from the first storage system.

5. (Previously Presented) A data processing system according to claim 3, wherein the second storage system is configured to write, upon receiving from the first storage system a data write request, in the third storage area the data received from the first storage system, write in the fourth storage area the data received from the

first storage system and the update information relating to the write order of the data, and send a response to the first storage system.

6-8. (Canceled)

9. (Previously Presented) A data processing system according to claim 1, wherein the third storage system is configured to read at specified time intervals from the first storage system the data and the update information stored in the second storage area.

10. (Previously Presented) A data processing system according to claim 1, wherein the first storage system is configured to generate, upon receiving a data write request from the host device, an update number that is used for identifying the write order of the data, and

wherein the update information written in the second storage area in the first storage system includes the update number generated by the first storage system.

11. (Previously Presented) A data processing system according to claim 1, wherein the update information written in the fifth storage area in the third storage system includes an update number that is used for identifying the write order of the data.

12. (Currently Amended) A data processing system according to claim 1,
wherein the first storage system includes a plurality of first storage areas, and
wherein the update information written in the second storage area includes an
update number used for identifying the write order of data written in the plurality of
first storage areas.

13. (Currently Amended) A data processing system according to claim 12,
wherein the second storage system includes a plurality of third storage areas,
and the third storage system includes a plurality of sixth storage areas,
wherein the update information written in the fourth storage area of the
second storage system includes an update number used for identifying the write
order of data is created for data that is written in the plurality of third storage areas,
and the update information written in the fifth storage area of the third storage
system includes an update number for identifying the write order of data written in
the plurality of sixth storage areas.

14. (Currently Amended) A data processing system comprising:
a first storage system that is configured to couple to a host device and
configured to send and receive data to and from the host device;
a second storage system that is coupled to the first storage system and
configured to receive data from the first storage system; and

a third storage system that is coupled to the first storage system and configured to receive data from the first storage system, wherein

the first storage system includes a plurality of first storage areas that ~~are~~^{is} configured to store data written from the host device, and a second storage area that is configured to store the data written from the host device to the plurality of first storage areas and update information relating to a write order of the data written from the host device to the plurality of first storage areas,

the first storage system is configured to transmit the data written from the host device to the plurality of first storage areas to the second storage system synchronously with receiving the data from the host device, and transmit the data written from the host device to the plurality of first storage areas and the update information to the third storage system asynchronously with receiving the data from the host device,

the second storage system includes a plurality of third storage areas that ~~are~~^{is} configured to store the data received from the first storage system, and a fourth storage area that is configured to store the data received from the first storage system and update information relating to the write order of the data in order to transmit the data and the update information stored in the fourth storage area to the third storage system in case of failure of the first storage system,

the third storage system includes a fifth storage area that is configured to store the data and the update information read from the second storage area, and a

plurality of sixth storage areas that ~~are~~is configured to store the data included in the fifth storage area according to the update information included in the fifth storage area, and

wherein data stored in the fifth storage area is written in the plurality of sixth storage areas according to the update information stored in the fifth storage area.

15. (Previously Presented) A data processing system according to claim 1, wherein the update information written in the second storage area in the first storage system includes an update number that is generated by the first storage system to be used for identifying the write order of the data,

the update information written in the fourth storage area in the second storage system includes the update number included in the update information written in the second storage area, and

the update information written in the fifth storage area in the third storage system includes the update number included in the update information written in the second storage area.

16-40. (Canceled)

41. (Previously Presented) A data processing system according to claim 1, wherein the third storage system is configured to transmit a read request to the first storage

system, and in response to the read request, the first storage system is configured to transmit the data and the update information stored in the second storage area to the third storage system.

42. (Currently Amended) A data processing system according to claim 1, wherein in case of failure of the first storage system, the data and the update information, which are not received by the third storage system before the failure of the first storage system but stored in the fourth storage area of the second storage system before the failure of the first storage system, are transmitted from the fourth storage area of the second storage system to the third storage system, the fifth storage area of the third storage system is configured to store the data and the update information received from the second storage system, and the sixth storage area of the third storage system is configured to store the data included in the fifth storage area according to the update information included in the fifth storage area.

43. (Currently Amended) A data processing system according to claim 42, wherein in the update information, which the third storage system reads from the second storage area of the first storage system, a number indicating the write order of the data is included, and

wherein in case of failure of the first storage system, the data and the update information, which the third storage system does not read from the first storage

system before the failure of the first storage system, are specified by using a number included in the update information, which the third storage system reads from the second storage area of the first storage system before the failure of the first storage system.

44. (Previously Presented) A data processing system according to claim 1,
wherein in case of failure of the first storage system, the data and the update information stored in the fourth storage area of the second storage system are transmitted to the third storage system, and the data transmitted from the fourth storage area to the third storage system is stored in the sixth storage area of the third storage system in an order related to the write order of the data based on the update information transmitted from the fourth storage area.

45. (Previously Presented) A data processing system according to claim 44,
wherein the data stored in the fourth storage area of the second storage system, which is transmitted to the third storage system and stored in the sixth storage area of the third storage system in the order related to the write order of the data, is received by the second storage system from the first storage system before the failure of the first storage system.

46. (Previously Presented) A data processing system according to claim 1,
wherein each of the first storage system, the second storage system, and the
third storage system includes at least one disk, and each of the first storage area, the
third storage area, and the sixth storage area is a logical volume configured by a
disk.

47. (Previously Presented) A data processing system according to claim 46,
wherein the second storage area is a logical volume configured by a disk.

48. (Previously Presented) A data processing system according to claim 47,
wherein each of the fourth storage area and the fifth storage area is a logical
volume configured by a disk.